

# PATENT ABSTRACTS OF JAPAN

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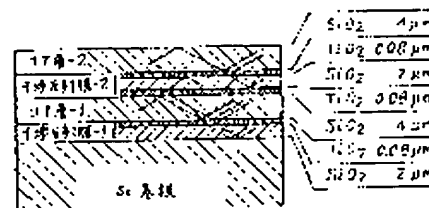
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## (54) LAMINATED OPTICAL WAVEGUIDE

### (57)Abstract:

PURPOSE: To constitute a clad layer consisting of interference reflection films to a low loss and to allow respective laminated optical waveguides to make light transmission respectively independently by alternately laminating clad layers interposed with low refractive index material layers and low refractive index material core layers between thin layers of a high refractive index material.

CONSTITUTION: The SiO<sub>2</sub> core layer 1 having 0.08 $\mu$ m film thickness is deposited on a silicon substrate having about 3.5 refractive index via the interference reflection film made of the two-layered constitution consisting of the 2nd SiO<sub>2</sub> clad layer having 2 $\mu$ m film thickness and the 1st TiO<sub>2</sub> clad layer having 0.08 $\mu$ m film thickness. The SiO<sub>2</sub> core layer 2 having 4 $\mu$ m film thickness is then deposited thereon via the interference reflection film 2 made of the 3-layered constitution interposed with the 2nd SiO<sub>2</sub> clad layer having 2 $\mu$ m film thickness between the upper and lower 1st TiO<sub>2</sub> clad layers both having 0.08 $\mu$ m film thickness. The thin clad layers having a small film thickness are interposed between the respective layers of the laminated optical waveguides to form the waveguides into the substantially thoroughly noncoupled state, by which the crosstalks between the respective waveguides are entirely eliminated.



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